## **EMPLOYEE TRAINING RECORD**

#### TRAINING TITLE

Confined Spaces - Hazards - Flammability Ranges and Monitor Responses to Different Combustibles and Flammable Particulate Atmospheres

## **KEY TEACHING POINTS**

#### FLAMMABILITY RANGES - UEL AND LEL

- A fuel can burn only if it is mixed with oxygen in the right proportion. If there is too much air, the fuel/air mixture is too lean to burn. If there is too much fuel, the fuel/air mixture is too rich to burn.
- The UEL and LEL are limits that determine whether a fuel/air mixture can burn:
  - Upper Explosive Limit (UEL) beyond which a fuel is too rich to burn.
  - Lower Explosive Limit (LEL) below which the fuel is too lean to burn.
- Between the UEL and LEL lies the potential for explosion.
- Some gases (e.g., acetylene) have no UEL. They will burn at 100% concentrations.
- Any atmosphere that is safe to enter will be too lean to burn.

## MONITOR RESPONSES TO DIFFERENT COMBUSTIBLES

• A monitor is accurate only when measuring the type of flammable gas used during calibration. There is some deviation between the types of gases we confront and the calibration gas. We use methane as our calibration gas.

## FLAMMABLE PARTICULATE ATMOSPHERES

- Flammable particulates include flour, pulverized coal, or any flammable dusts suspended
  in air.
- These have a high explosive potential and OSHA standards say that if vision is obscured at a distance of 5 feet, a hazard exists. Some substances however, may pose a danger at concentrations lower than the 5 foot standard.

# **TEST ANSWERS** QUESTION TRUE **FALSE** 1. UEL is the limit beyond which fuel is too rich to burn. 2. LEL is the limit below which fuel is too lean to burn. 3. All gases have a UEL. 4. If vision is obscured at 5 feet, a hazard exists. 5. A gas meter is always 100% accurate. **EMPLOYEE'S NAME EMPLOYEE'S SIGNATURE** DATE **INSTRUCTOR'S NAME INSTRUCTOR'S SIGNATURE** DATE

1. True 2. True 3. False 4. True 5. False